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FILE 'HOME' ENTERED AT 15:03:54 ON 21 OCT 2005

=> file biosis caplus caba agricola

=> s pep and nep and (plastid or chloroplast)
L1          98 PEP AND NEP AND (PLASTID OR CHLOROPLAST)

=> duplicate remove l1
L2           41 DUPLICATE REMOVE L1 (57 DUPLICATES REMOVED)

=> d ti 1-41
```

L2 ANSWER 1 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
TI Glutamyl-tRNA mediates a switch in RNA polymerase use during **chloroplast** biogenesis.

L2 ANSWER 2 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
TI A nuclear-encoded sigma factor, Arabidopsis SIG6, recognizes sigma-70 type **chloroplast** promoters and regulates early **chloroplast** development in cotyledons.

L2 ANSWER 3 OF 41 CAPLUS COPYRIGHT 2005 ACS on STN
TI **Plastid** transcription in higher plants

L2 ANSWER 4 OF 41 CAPLUS COPYRIGHT 2005 ACS on STN
TI Multiple-stress responsive **plastid** sigma factor, SIG5, directs activation of the psbD blue light-responsive promoter (BLRP) in Arabidopsis thaliana: use for enhancing tolerance of plants to environmental stresses

L2 ANSWER 5 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
TI Roles of **chloroplast** RNA polymerase sigma factors in **chloroplast** development and stress response in higher plants.

L2 ANSWER 6 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on ST
TI Overexpression of phage-type RNA polymerase RpoTp in tobacco demonstrates its role in **chloroplast** transcription by recognizing a distinct promoter type.

L2 ANSWER 7 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
TI Analysis of developing maize plastids reveals two mRNA stability classes correlating with RNA polymerase type.

L2 ANSWER 8 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
TI DNA microarray analysis of **plastid** gene expression in an Arabidopsis mutant deficient in a **plastid** transcription factor sigma, SIG2.

L2 ANSWER 9 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
TI The rbcL genes of two Cuscuta species, C. gronovii and C. subinclusa, are transcribed by the nuclear-encoded **plastid** RNA polymerase (**NEP**).

L2 ANSWER 10 OF 41 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 8
TI The multiple-stress responsive **plastid** sigma factor, SIG5, directs activation of the psbD blue light-responsive promoter (BLRP) in Arabidopsis thaliana

L2 ANSWER 11 OF 41 CAPLUS COPYRIGHT 2005 ACS on STN
TI Transcription regulation in higher plant chloroplasts: transcriptional cascade during the **chloroplast** development

L2 ANSWER 12 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI **Plastid** transcription in the holoparasitic plant genus Cuscuta: Parallel loss of the rrn16 **PEP**-promoter and of the rpoA and rpoB genes coding for the **plastid**-encoded RNA polymerase.

L2 ANSWER 13 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI The Arabidopsis nuclear DAL gene encodes a **chloroplast** protein which is required for the maturation of the **plastid** ribosomal RNAs and is essential for **chloroplast** differentiation.

L2 ANSWER 14 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Characterization of Arabidopsis **plastid** sigma-like transcription factors SIG1, SIG2 and SIG3.

L2 ANSWER 15 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI The transcriptional apparatus of algal plastids.

L2 ANSWER 16 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Sequences upstream of the YRTA core region are essential for transcription of the tobacco atpB **NEP** promoter in chloroplasts in vivo.

L2 ANSWER 17 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Comparative analysis of **plastid** transcription profiles of entire **plastid** chromosomes from tobacco attributed to wild-type and **PEP**-deficient transcription machineries.

L2 ANSWER 18 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI An Arabidopsis sigma factor (SIG2)-dependent expression of **plastid** -encoded tRNAs in chloroplasts.

L2 ANSWER 19 OF 41 CAPLUS COPYRIGHT 2005 ACS on STN
TI Regulation of rDNA transcription in spinach plastids by transcription factor CDF2

L2 ANSWER 20 OF 41 CAPLUS COPYRIGHT 2005 ACS on STN
TI Transcription mechanism in **plastid**

L2 ANSWER 21 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Functional analysis of the Arabidopsis sigma-like factor, AtSig5.

L2 ANSWER 22 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Determining the subcellular localization of a nuclear-encoded sigma-like factor, ZmSig2b, in maize.

L2 ANSWER 23 OF 41 CAPLUS COPYRIGHT 2005 ACS on STN
TI **Plastid** RNA polymerases in higher plants

L2 ANSWER 24 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Regulation of **plastid** rDNA transcription by interaction of CDF2 with two different RNA polymerases.

L2 ANSWER 25 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Disruption of **plastid**-encoded RNA polymerase genes in tobacco: Expression of only a distinct set of genes is not based on selective transcription of the **plastid** chromosome.

L2 ANSWER 26 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI A chloroplastic RNA polymerase resistant to tagetitoxin is involved in replication of avocado sunblotch viroid.

L2 ANSWER 27 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Dissecting the functions of nuclear-encoded sigma-like factors in maize and Arabidopsis.

L2 ANSWER 28 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Transcripts and sequence elements suggest differential promoter usage within the ycf3-psaAB gene cluster on mustard (Sinapis alba L.) **chloroplast** DNA.

L2 ANSWER 29 OF 41 CAPLUS COPYRIGHT 2005 ACS on STN

TI Nuclear genome controlling the transcription of **plastid**

L2 ANSWER 30 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Plastidic RNA polymerase sigma factors in Arabidopsis.

L2 ANSWER 31 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI In vitro characterization of the tobacco rpoB promoter reveals a core sequence motif conserved between phage-type **plastid** and plant mitochondrial promoters.

L2 ANSWER 32 OF 41 CABA COPYRIGHT 2005 CABI on STN
TI Transcription and the architecture of promoters in chloroplasts.

L2 ANSWER 33 OF 41 CAPLUS COPYRIGHT 2005 ACS on STN
TI Novel in vitro transcription assay indicates that the accD **NEP** promoter is contained in a 19 bp fragment

L2 ANSWER 34 OF 41 CAPLUS COPYRIGHT 2005 ACS on STN
TI Organellar RNA polymerases of higher plants

L2 ANSWER 35 OF 41 CAPLUS COPYRIGHT 2005 ACS on STN
TI **Plastid** promoters for transgene expression in the plastids of higher plants

L2 ANSWER 36 OF 41 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 21
TI Expression of **plastid** genes by the two RNA polymerases

L2 ANSWER 37 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI RNA polymerase subunits encoded by the **plastid** rpo genes are not shared with the nucleus-encoded **plastid** enzyme.

L2 ANSWER 38 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Mapping of promoters for the nucleus-encoded plastic RNA polymerase (**NEP**) in the iojap maize mutant.

L2 ANSWER 39 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI **Plastid** promoter utilization in a rice embryogenic cell culture.

L2 ANSWER 40 OF 41 CABA COPYRIGHT 2005 CABI on STN
TI Two **plastid** RNA polymerases of higher plants: an evolving story.

L2 ANSWER 41 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on

TI The two RNA polymerases encoded by the nuclear and the **plastid** compartments transcribe distinct groups of genes in tobacco plastids.

=> d bib abs 41 40 36 35 29 23 20 17 3

L2 ANSWER 41 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
AN 1997:366735 BIOSIS
DN PREV199799658668
TI The two RNA polymerases encoded by the nuclear and the **plastid** compartments transcribe distinct groups of genes in tobacco plastids.
AU Hajdukiewicz, Peter T. J.; Allison, Lori A.; Maliga, Pal [Reprint author]
CS Waksman Inst., Rutgers, State Univ. New Jersey, Piscataway, NJ 08855-0759, USA
SO EMBO (European Molecular Biology Organization) Journal, (1997) Vol. 16, No. 13, pp. 4041-4048.
CODEN: EMJODG. ISSN: 0261-4189.
DT Article
LA English
ED Entered STN: 25 Aug 1997
Last Updated on STN: 25 Aug 1997
AB The **plastid** genome in photosynthetic higher plants encodes subunits of an Escherichia coli-like RNA polymerase (**PEP**) which

initiates transcription from E. coli sigma-70-type promoters. We have previously established the existence of a second nuclear-encoded **plastid** RNA polymerase (**NEP**) in photosynthetic higher plants. We report here that many **plastid** genes and operons have at least one promoter each for **PEP** and **NEP** (Class II transcription unit). However, a subset of **plastid** genes, including photosystem I and II genes, are transcribed from **PEP** promoters only (Class I genes), while in some instances (e.g. accD) genes are transcribed exclusively by **NEP** (Class III genes). Sequence alignment identified a 10 nucleotide **NEP** promoter consensus around the transcription initiation site. Distinct **NEP** and **PEP** promoters reported here provide a general mechanism for group-specific gene expression through recognition by the two RNA polymerases.

L2 ANSWER 40 OF 41 CABA COPYRIGHT 2005 CABI on STN
AN 1998:89001 CABA
DN 19981605977
TI Two **plastid** RNA polymerases of higher plants: an evolving story
AU Maliga, P.
CS Waksman Institute, Rutgers University, 190 Frelinghuysen Road, Piscataway, NJ 08854-8010, USA.
SO Trends in Plant Science, (1998) Vol. 3, No. 1, pp. 4-6. 18 ref.
DT Journal
LA English
ED Entered STN: 19980611
Last Updated on STN: 19980611
AB The **plastid**-encoded **plastid** polymerase (**PEP**) [alpha], [beta], [beta][prime] and [beta][prime][prime] core subunits recognize the promoter by 3 nuclear-encoded, [sigma]-like factors which are similar to [sigma]70-type eubacterial promoters with two blocks of conserved hexameric sequences. There is also evidence for a phage-type nuclear-encoded **plastid** RNA polymerase (**NEP**) from barley and maize mutants lacking **PEP**. Based on studies in tobacco, photosynthetic genes have **PEP** promoters, most non-photosynthetic genes have promoters for both polymerases, and a few non-photosynthetic genes only have promoters for **NEP**. Two models on the role of these polymerases in the conversion of photosynthetic prokaryotes into plant organelles are briefly discussed.

L2 ANSWER 36 OF 41 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 21
AN 2000:284655 CAPLUS
DN 134:37871
TI Expression of **plastid** genes by the two RNA polymerases
AU Maliga, Pal; Svab, Zora
CS Waksman Institute, The State University of New Jersey, Piscataway, NJ, 08854-8020, USA
SO Photosynthesis: Mechanisms and Effects, Proceedings of the International Congress on Photosynthesis, 11th, Budapest, Aug. 17-22, 1998 (1998), Volume 4, 2947-2951. Editor(s): Garab, Gyozo. Publisher: Kluwer Academic Publishers, Dordrecht, Neth.
CODEN: 68VVAS
DT Conference
LA English
AB Transcription of the rrn operon by **plastid**- (**PEP**) and nuclear-encoded (**NEP**) RNA polymerases is essential for normal function and development of chloroplasts. Transcription by the **PEP** from the P1 promoter is sufficient, whereas transcription by the **NEP** from the P2 promoter is dispensable. Broader implications suggest that there is nosystematic promoter switch from **NEP** to **PEP** during **chloroplast** development, and that the two **plastid** RNA polymerases work on parallel rather than hierarchially.
RE.CNT 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

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L2   ANSWER 35 OF 41  CAPLUS  COPYRIGHT 2005 ACS on STN
AN   1998:806761  CAPLUS
DN   130:62041
TI   Plastid promoters for transgene expression in the plastids of
     higher plants
IN   Maliga, Pal; Silhavy, Daniel; Sriraman, Priya
PA   Rutgers, the State University of New Jersey, USA
SO   PCT Int. Appl., 79 pp.
     CODEN: PIXXD2
DT   Patent
LA   English
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.         DATE
     ---------------     ----   --------    --------------------    --------
PI   WO 9855595           A1    19981210    WO 1998-US11437         19980603
         W:  AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,
             DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG,
             KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX,
             NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,
             UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
         RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES,
             FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI,
             CM, GA, GN, ML, MR, NE, SN, TD, TG
     CA 2292782           AA    19981210    CA 1998-2292782         19980603
     AU 9878125           A1    19981221    AU 1998-78125           19980603
     ZA 9804774           A     19991125    ZA 1998-4774            19980603
     EP 1015557           A1    20000705    EP 1998-926244          19980603
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, FI
     JP 2002502262        T2    20020122    JP 1999-502824          19980603
     US 6624296           B1    20030923    US 1999-445283          19991203
     US 2004040058        A1    20040226    US 2003-663241          20030916
PRAI US 1997-48376P       P     19970603
     US 1997-58670P       P     19970912
     WO 1998-US11437      W     19980603
     US 1999-445283       A3    19991203
AB   The present invention provides promoter elements useful for stably
     transforming and engineering the plastids of higher plants.  The
     constructs described herein contain unique promoters that are transcribed
     by both nuclear encoded plastid RNA polymerases, plastid
     encoded plastid RNA polymerases or both.  Use of the novel
     constructs of the invention facilitates transformation of a wider range of
     plant species and enables ubiquitous expression of a transforming DNA in
     plastids of multicellular plants.
RE.CNT  4      THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
               ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2   ANSWER 29 OF 41  CAPLUS  COPYRIGHT 2005 ACS on STN
AN   2000:335816  CAPLUS
DN   133:38768
TI   Nuclear genome controlling the transcription of plastid
AU   Sugita, Mamoru
CS   Grad. Sch. Human Inf., Nagoya Univ., Nagoya, 464-8601, Japan
SO   BRAIN Techno News (2000), 79, 22-24
     CODEN: BTEEEC
PB   Seibutsukei Tokutei Sangyo Gijutsu Kenkyu Suishin Kiko
DT   Journal; General Review
LA   Japanese
AB   A review with 7 refs.  Plastid is equipped with ≥2 RNA
     polymerases, and genes possess plastid encoded plastid
     RNA polymerase (PEP) promoters or nuclear encoded
     plastid RNA polymerase (NEP, NCII promoters).
     Transcription from PEP promoter is enhanced by light, and
     NEP promoter is the major promoter under non-photosynthetic
     plastid.  Cis sequences of Box 1 and Box 2 are necessary for
     NEP.  NEP is specific for terrestrial plants.
```

L2 ANSWER 23 OF 41 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:330606 CAPLUS
DN 137:3054
TI **Plastid** RNA polymerases in higher plants
AU Liere, Karsten; Maliga, Pal
CS Waksman Institute, Rutgers, The State University of New Jersey, Piscataway, NJ, 08854-8020, USA
SO Advances in Photosynthesis and Respiration (2001), 11(Regulation of Photosynthesis), 29-49
CODEN: APRDDY
PB Kluwer Academic Publishers
DT Journal; General Review
LA English
AB A review. Plastids evolved from ancestral cyanobacteria through gradual conversion of an endosymbiont to a plant organelle. Plastids maintained a cyanobacterium-like (eubacterial) transcription machinery. The eubacterial core-enzyme consists of four **plastid**-encoded subunits (α2, β, β' and β''), and may associate with multiple, nuclear-encoded σ70-type specificity factors. This holo-enzyme is the **plastid**-encoded **plastid** RNA polymerase (**PEP**). The promoters recognized by the **PEP** are of σ70-type with conserved -10 (TATAAT) and -35 (TTGACA) elements. In addition, species-specific cis-elements and trans-factors regulate psbA, psbD and rrn16 promoter activity. The **PEP** in chloroplasts assocs. with up to eight auxiliary proteins. One of them is the **plastid** transcription kinase (PTK), an enzyme which regulates **PEP** transcription by σ factor phosphorylation. PTK activity itself is regulated by phosphorylation and the redox state of plastids. In addition to the eubacterial enzyme, plastids have acquired a second, phage-type RNA polymerase (**NEP**, nuclear-encoded **plastid** RNA polymerase). **NEP** probably evolved by duplication of the mitochondrial transcription machinery. A nuclear gene encodes the **NEP** catalytic core with a **plastid** targeting N-terminal sequence. The **NEP** subunit composition is likely to be similar to the mitochondrial enzyme, which assocs. with at least two specificity factors. **NEP** recognizes two distinct promoters. Type-I **NEP** promoters are .apprx.15 nt AT-rich region upstream (-14 to +1) of the transcription initiation site (+1) with a conserved YRTA core, a feature shared with plant mitochondrial promoters. Type-II **NEP** promoters are mainly downstream (-5 to +25) of the transcription initiation site. There is a division of labor between the two **plastid** RNA polymerases. Photosynthetic genes and operons have **PEP** promoters, whereas most non-photosynthetic genes involved in housekeeping functions, such as transcription and translation, have promoters for both RNA polymerases. The **NEP** promoter(s) of these genes are, with a few exceptions, silent in chloroplasts. Only a few genes are transcribed exclusively from a **NEP** promoter. One of these is the rpoB operon encoding three of the four **PEP** core subunits. Through transcription of the **PEP** genes by the **NEP** the nucleus indirectly controls transcription of **plastid** genes, thereby integrating the endosymbiont-turned-organelle into the developmental network of multicellular plants.
RE.CNT 166 THERE ARE 166 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 20 OF 41 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:295655 CAPLUS
DN 139:17943
TI Transcription mechanism in **plastid**
AU Toyoshima, Yoshinori; Shiina, Takashi
CS Kyoto University, Japan
SO Shokubutsu Genomu Kino no Dainamizumu (2001), 219-229. Editor(s): Iwabuchi, Masaki; Shinozaki, Kazuo. Publisher: Springer-Verlag Tokyo, Tokyo, Japan.
CODEN: 69DUBB; ISBN: 4-431-70943-6

DT Conference; General Review
LA Japanese
AB A review discussed transcription mechanism in **plastid**. Transcription reaction promoted by **PEP** (**plastid** -encoded **plastid** RNA polymerase) and mol. recognition of the polymerase σ subunit with promoter element were discussed. The functions of the gene-specific transcription factors including PTF1, CDF1 and CDF2 (**chloroplast** DNA-binding factor 1 and 2) and **PEP**-binding proteins were described. The transcription mechanism promoted by **NEP** (nucleus-encoded **plastid** RNA polymerase) was also discussed. Protein composition of the **plastid** nucleoid was described and the roles of CND41 (**chloroplast** nucleoid-DNA binding protein 41k) and PEND (**plastid** envelop DNA-binding) protein in DNA-replication and chromatin distribution were discussed. Evolution of the factors involved in the **plastid** transcription mechanism was also discussed.

L2 ANSWER 17 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
AN 2002:442326 BIOSIS
DN PREV200200442326
TI Comparative analysis of **plastid** transcription profiles of entire **plastid** chromosomes from tobacco attributed to wild-type and **PEP**-deficient transcription machineries.
AU Legen, Julia; Kemp, Sabine; Krause, Kirsten; Profanter, Birgit; Herrmann, Reinhold G.; Maier, Rainer M. [Reprint author]
CS Department fuer Biologie I, Botanik, Ludwig-Maximilians-Universitaet Muenchen, Menzingerstrasse 67, D-80638, Muenchen, Germany raimaier@botanik.biologie.uni-muenchen.de
SO Plant Journal, (July, 2002) Vol. 31, No. 2, pp. 171-188. print. ISSN: 0960-7412.
DT Article
LA English
ED Entered STN: 21 Aug 2002
Last Updated on STN: 21 Aug 2002
AB Transcription of **plastid** chromosomes in vascular plants is accomplished by at least two RNA polymerases of different phylogenetic origin: the ancestral (endosymbiotic) cyanobacterial-type RNA polymerase (**PEP**), of which the core is encoded in the organelle chromosome, and an additional phage-type RNA polymerase (**NEP**) of nuclear origin. Disruption of **PEP** genes in tobacco leads to off-white phenotypes. A macroarray-based approach of transcription rates and of transcript patterns of the entire **plastid** chromosome from leaves of wild-type as well as from transplastomic tobacco lacking **PEP** shows that the **plastid** chromosome is completely transcribed in both wild-type and **PEP**-deficient plastids, though into polymerase-specific profiles. Different probe types, run-on transcripts, 5' or 3' labelled RNAs, as well as cDNAs, have been used to evaluate the array approach. The findings combined with Northern and Western analyses of a selected number of loci demonstrate further that frequently no correlation exists between transcription rates, transcript levels, transcript patterns, and amounts of corresponding polypeptides. Run-on transcription as well as stationary RNA concentrations may increase, decrease or remain similar between the two experimental materials, independent of the nature of the encoded gene product or of the multisubunit assembly (thylakoid membrane or ribosome). Our findings show (i) that the absence of photosynthesis-related, plastome-encoded polypeptides in **PEP**-deficient plants is not directly caused by a lack of transcription by **PEP**, and demonstrate (ii) that the functional integration of **PEP** and **NEP** into the genetic system of the plant cell during evolution is substantially more complex than presently supposed.

L2 ANSWER 3 OF 41 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2005:269420 CAPLUS
DN 143:279821
TI **Plastid** transcription in higher plants

AU Toyoshima, Yoshinori; Onda, Yayoi; Shiina, Takashi; Nakahira, Yoichi
CS Nano-biotechnology Research Center and Department of Biosciences, School of Science and Technology, Kwanseigakuin University, Hyogo, 669-1331, Japan
SO Critical Reviews in Plant Sciences (2005), 24(1), 59-81
CODEN: CRPSD3; ISSN: 0735-2689
PB Taylor & Francis, Inc.
DT Journal; General Review
LA English
AB A review. The **plastid** genome is transcribed by nucleus-encoded (**NEP**) and **plastid** encoded (**PEP**) RNA polymerases. **NEP** transcribes housekeeping genes as well as genes coding for **PEP** core subunits and its activity is replaced by **PEP** in chloroplasts resulting in differential expression of genes in a developmental context. **PEP** is a prokaryotic-type enzyme in which nuclear-encoded σ factors function as promoter recognition subunit. A phylogenetic anal. for σ factors identified so far in plants shows that plant σ factors are members of bacterial σ70 family and divided into six groups, Sig1 through Sig6, which are integrated into four clusters consisting of Sig1 and Sig4, Sig2 and Sig3, Sig5 and Sig6. All **plastid** σ factors recognize bacterial σ70-type promoters, but they differ in promoter preference and the tissue-, developmental stage- and environmental-dependent expression. Sig5 is distinct from the other σ factors in its structure, function, and expression in response to light and stress. A promoter of the psbD operon, psbD blue light responsive promoter (psbDBLRP) is a typical example that is under the control of a combination of various signals arising in the nucleus and plastids in response to the tissue specific and developmental stage- and environment-dependent cues. PsbDBLRP is recognized only by Sig5, which is expressed by a cryptochrome-mediated blue light signal and signals responding to stress conditions. The activity of psbDBLRP is also under the control of circadian clock. Furthermore, it may be regulated by redox signals generated by photosynthetic electron transport in the **chloroplast** presumably through the change of the binding affinity of a nuclear encoded transcription factor for the enhancer element located upstream of the core promoter region of the psbD operon.
RE.CNT 212 THERE ARE 212 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

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=> s clp? and (plastid or chloroplast)
L3          304 CLP? AND (PLASTID OR CHLOROPLAST)

=> s clpp and (plastid or chloroplast)
L4          188 CLPP AND (PLASTID OR CHLOROPLAST)

=> duplicate remove l4

L5            98 DUPLICATE REMOVE L4 (90 DUPLICATES REMOVED)

=> d ti 51-98
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L5 ANSWER 51 OF 98 CAPLUS COPYRIGHT 2005 ACS on STN
TI Translation control elements for high-level protein expression in the plastids of higher plants and methods of use thereof

L5 ANSWER 52 OF 98 CAPLUS COPYRIGHT 2005 ACS on STN
TI Plant genes for protoporphyrinogen oxidases and the development of herbicide-resistant forms of the enzyme

L5 ANSWER 53 OF 98 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI **Chloroplast** proteases: Possible regulators of gene expression?.

L5 ANSWER 54 OF 98 CAPLUS COPYRIGHT 2005 ACS on STN

TI Complete structure of the **chloroplast** genome of a legume, Lotus japonicus

L5 ANSWER 55 OF 98 CAPLUS COPYRIGHT 2005 ACS on STN
TI Chinese spring wheat (Triticum aestivum L.) **chloroplast** genome: Complete sequence and contig clones

L5 ANSWER 56 OF 98 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Over-expression of the **clpP** 5' UTR in a chimeric context confers a mutant phenotype by interference with maturation of **clpP** mRNA.

L5 ANSWER 57 OF 98 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Evidence for a role of **ClpP** in the degradation of the **chloroplast** cytochrome b6f complex.

L5 ANSWER 58 OF 98 CAPLUS COPYRIGHT 2005 ACS on STN
TI Replacement of **chloroplast** chlL gene of Chlamydomonas via homologous recombination and identification of its homoplasmy

L5 ANSWER 59 OF 98 CAPLUS COPYRIGHT 2005 ACS on STN
TI Arabidopsis gene **clpP plastid** promoter sequence and use for **plastid** transformation

L5 ANSWER 60 OF 98 CAPLUS COPYRIGHT 2005 ACS on STN
TI Expression of microbial genes for enzymes of trehalose biosynthetic genes in plants and the improvement of plant drought resistance

L5 ANSWER 61 OF 98 CAPLUS COPYRIGHT 2005 ACS on STN
TI Genes encoding herbicide inhibitor-resistant mutants of plant protoporphyrinogen oxidase and transgenic plants expressing same

L5 ANSWER 62 OF 98 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Analysis of the nucleus-encoded and **chloroplast**-targeted rieske protein by classic and site-directed mutagenesis of chlamydomonas.

L5 ANSWER 63 OF 98 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI **Chloroplast**-targeted ERD1 protein declines but its mRNA increases during senescence in Arabidopsis.

L5 ANSWER 64 OF 98 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Identification of clp genes expressed in senescing Arabidopsis leaves.

L5 ANSWER 65 OF 98 CAPLUS COPYRIGHT 2005 ACS on STN
TI Complete structure of the **chloroplast** genome of Arabidopsis thaliana

L5 ANSWER 66 OF 98 CAPLUS COPYRIGHT 2005 ACS on STN
TI **Plastid** promoters for transgene expression in the plastids of higher plants

L5 ANSWER 67 OF 98 CAPLUS COPYRIGHT 2005 ACS on STN
TI The phage-type PclpP-53 **plastid** promoter comprises sequences downstream of the transcription initiation site

L5 ANSWER 68 OF 98 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Characterisation of transcript initiation sites in ribosome-deficient barley plastids.

L5 ANSWER 69 OF 98 CAPLUS COPYRIGHT 2005 ACS on STN
TI Degradation of active-oxygen-modified ribulose-1,5-biphosphate carboxylase/oxygenase by chloroplastic protease requires ATP-hydrolysis

L5 ANSWER 70 OF 98 CAPLUS COPYRIGHT 2005 ACS on STN
TI How far divergent evolution goes in proteins

L5 ANSWER 71 OF 98 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on

TI Mapping of promoters for the nucleus-encoded plastic RNA polymerase (NEP) in the iojap maize mutant.

L5 ANSWER 72 OF 98 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Clp protease complexes and their diversity in chloroplasts.

L5 ANSWER 73 OF 98 CAPLUS COPYRIGHT 2005 ACS on STN
TI Updated gene map of tobacco **chloroplast** DNA

L5 ANSWER 74 OF 98 CAPLUS COPYRIGHT 2005 ACS on STN
TI A **ClpP** homolog linked to the Brassica self-incompatibility (S) locus

L5 ANSWER 75 OF 98 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI **Plastid** promoter utilization in a rice embryogenic cell culture.

L5 ANSWER 76 OF 98 CAPLUS COPYRIGHT 2005 ACS on STN
TI Genes encoding herbicide inhibitor-resistant mutants of plant protoporphyrinogen oxidase and transgenic plants expressing same

L5 ANSWER 77 OF 98 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Identification of an unusual intein in **chloroplast ClpP** protease of Chlamydomonas eugametos.

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TI The ftf gene encoding the cell-bound fructosyltransferase of Streptococcus salivarius ATCC 25975 is preceded by an insertion sequence and followed by FUR1 and **clpP** homologues.

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TI NUCLEOTIDE SEQUENCE OF A REGION OF MAIZE **CHLOROPLAST** DNA CONTAINING THE 3' END OF **CLPP** EXON 1 OF RPS 12 AND RPL20 AND THEIR COTRANSCRIPTION.

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AN 1999:595398 CAPLUS
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TI Arabidopsis gene **clpP plastid** promoter sequence and use for **plastid** transformation
IN Heifetz, Peter Bernard
PA Novartis A.-G., Switz.; Novartis-Erfindungen Verwaltungsgesellschaft m.b.H.
SO PCT Int. Appl., 30 pp.
CODEN: PIXXD2
DT Patent
LA English
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	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9946394	A1	19990916	WO 1999-EP1515	19990309

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            MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,
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            CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
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     AU 9927286          A1     19990927    AU 1999-27286          19990309
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         R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
            IE, FI
     JP 2002505883       T2     20020226    JP 2000-535761         19990309
     ZA 9901923          A      19990913    ZA 1999-1923           19990310
PRAI US 1998-38878       A      19980311
     WO 1999-EP1515      W      19990309
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AB   A novel promoter isolated from the 5' flanking region upstream of the coding sequence of the Arabidopsis **plastid clpP** gene is described. Another promoter is isolated from the 5'-flanking region upstream of the coding sequence of the Arabidopsis 16S rRNA gene. Also described are a novel method for utilizing protein-coding regions of **plastid** genes to isolate intervening regulatory sequences and a novel method for improving **plastid** transformation efficiency using exogenous **plastid** promoters that differ in nucleotide sequence from native **plastid** promoters.

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